Safer Consumer Products Regulations

Presentation to the Green Ribbon Science Panel

April 9 and 10, 2014

California Environmental Protection Agency

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Department of Toxic Substances Control

Update on Alternatives Analysis Guidance Development

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Past to present

3 AA symposia in 2010

Tools workshop Oct 9-10, 2012

Engaged alternatives assessment community

- IC2 AA guide development
- OECD Meta Study development
- 'Commons' efforts
- BizNGO AA studies
- DfE, HESI, ASTM

SCP Implementation Timeline

2014				2015			
March			Oct				
propose priority products			3yr workplan due			Adoption of Priority Products	
Alternatives Analysis Guide Development							

2015 and beyond

Conduct trainings

- EPA tools
- GreenScreen
- Exposure modeling
- Life cycle

Hold workshops on AA methods/tools

Conduct a pilot AA effort

Assist those conducting AA's

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Guidance- Key considerations

The regulations provide a framework, steps, what needs to be considered for AA and reporting requirements.

- Only the Reg's are enforceable
- Guidance is assistance to meet Reg standards

Guidance- Key considerations

AA's will inform:

- Regulated entity's decisions
- DTSC's regulatory response

Large entities will likely follow their own R&D/product development protocol

- Guidance is focused on SME
- Assume capabilities to perform

Guide approach
The guide will:

- Follow the regulatory requirements
- Be flexible – recognize multiple methodologies
- List tools/methods/approaches, data sources and examples for completing each step
- Not provide thresholds or criteria
- Consider different methods for formulated versus articles
- Be a living document

Guide Status

Team members are drafting chapters

Hold workshops in summer/fall

Goal is to have a completed guide by the end of this year

Team:

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Xiaoying Zhou	Hortensia Muniz-Ghazi
others	

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A-M Criteria and Regulations

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Statutory Requirements and Regulations

- Regulations *always* clarify, interpret and make specific statutory requirements
- Health and Safety Code section 25253(a)(2), is clarified and made more specific in Title 22, Chapter 55, Article 5

AB 1879 (Chapter 559, Statutes of 2008) (Feuer)
Green Chemistry

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Required statutory considerations:

A. Product function / performance
B. Useful life
C. Materials/resource consumption
D. Water conservation
E. Water quality impacts
F. Air emissions
G. Product use, transportation, energy inputs
H. Energy efficiency
I. Greenhouse gas emissions
J. Waste and end-of-life disposal
K. Public health impacts
L. Environmental impacts
M. Economic impacts

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Required statutory considerations:

A-M must be considered in an alternatives analysis *before a regulatory response may be applied*

Health and Safety Code 25253(b)

A-M Criteria

- **Benefits**
  - Comprehensive
  - Capture product life cycle impacts

- **Challenges**:
  - Many criteria overlap
  - Not consistent with standard AA and LCA terminology/categories
  - Don't align with standard scientific areas of focus

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- Use terms, *to the extent practical*, already defined in California
  - OEHHA, Water Board, CalRecycle, etc.
- Use a process consistent with other life cycle assessment tools

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*per Article 1

A-M criteria in the SCP Regulations

Not a one-to-one correlation

Example

- Product function (A)
- Useful life (B)
- Product Use (G)

All are combined and addressed in multiple sections of regs

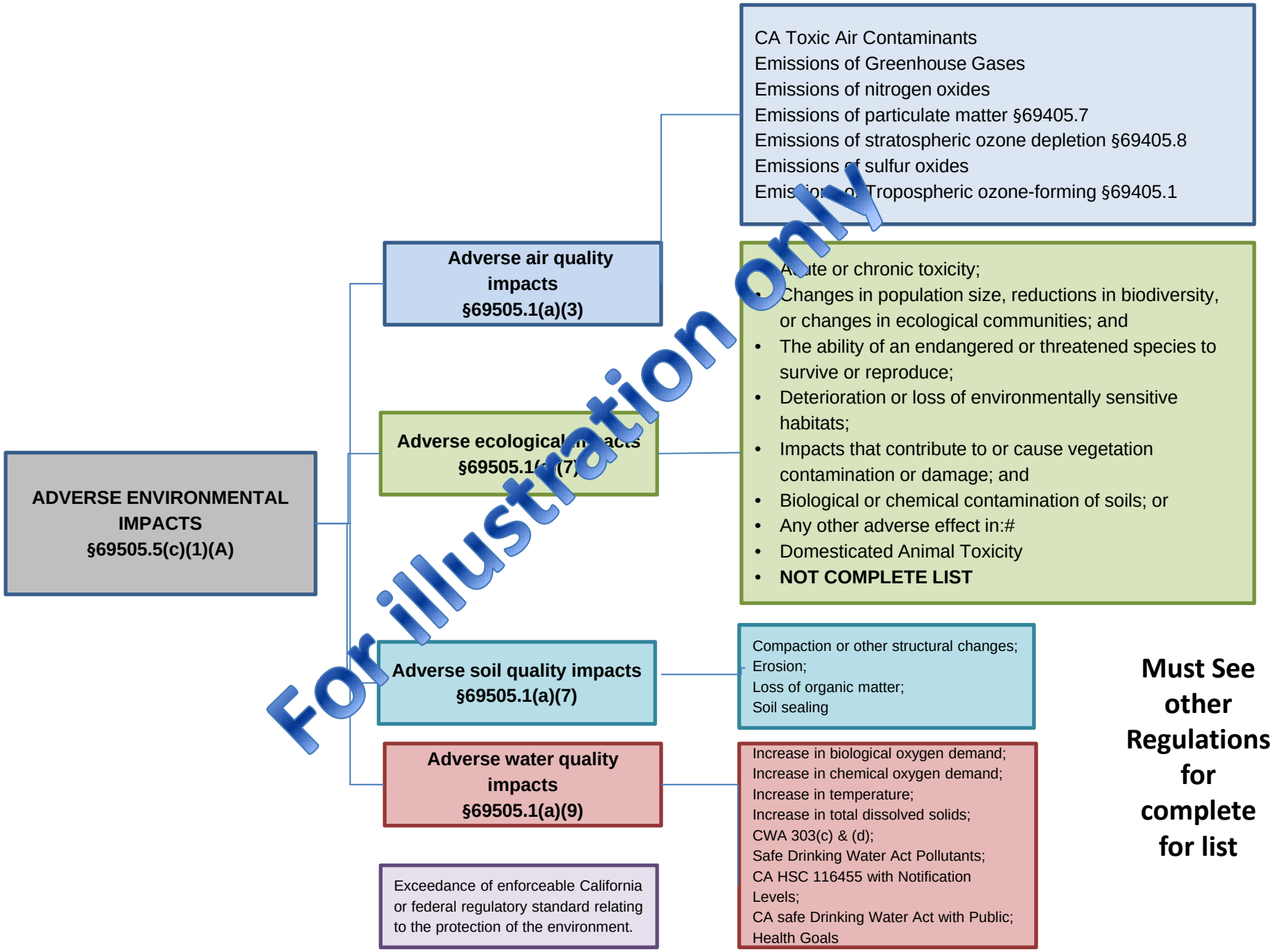
- §69501.1(a)(30) & (67)
- §69505.5(a)
- §69505.6(a)(2)

A-M criteria in the SCP Regulations

L criteria addressed as follows:

- Adverse environmental impacts listed in 69501.1(a)(4)

- Each is defined in regulation
  - Air quality 69501.1(a)(2)
  - Ecological 69501.1(a)(3)
  - Soil quality 69501.1(a)(7)
  - Water quality 69501.1(a)(9)



Flexible Options to comply with the requirements

- 2-stage AA
- Abridged AA
- Alternate Process AA
- Previously Completed AA

What option ? When?

2-stage AA

- Compare Priority Product with 1 or more alternative(s)
- To demonstrate COC is necessary and/or not economically feasible

Abridged AA

- No Functionally acceptable technically feasible alternative
- Allows Responsible Entity to go straight to R&D

Alternate Process AA

- Money saving alternative for Responsible Entities with an existing process that meets the requirements in article 5

Previously Completed AA

- More generic AA
- Supports collaborative AA development

What do the regulations require?

1st stage → Screening and options identification

- Identify information that is available
- Determine what is needed
- Identify Relevant factors
- *Optional* - consider Economic impacts
- Identify alternative(s) for further consideration

2nd Stage → Decisions

- Deeper dive
- Economic impact required
- Select the preferred/recommended alternative
- Narrative explains basis for conclusions and decisions

Comparison of Available Frameworks to Safer Consumer Products Regulatory Framework

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Alternatives Assessment
Existing Practice

For today

- Examples of Alternatives Assessment Frameworks

- Comparison to California Requirements

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Example Frameworks

- CA Safer Consumer Products Regulations
- REACH Authorization - Analysis of Alternatives
- Lowell Center AA Framework
- U.S. EPA Design for the Environment Chemical AA Steps
- German Federal Environment Agency: Guide on Sustainable Chemicals
- Interstate Chemicals Clearinghouse AA Guide
- BizNGO: Chemical Alternatives Assessment Protocol

Example Guidelines

- Interstate Chemicals Clearinghouse (IC2) AA Guide
- REACH Authorization Guidance
- U.S. EPA DfE Program AA Criteria for Hazard Evaluation

Example AA Tools

- GreenScreen – hazard assessment and ranking using benchmarks
- Qcat (Quick Chemical Assessment Tool) – simplified hazard assessment with grading
- P2OASys – developed by TURI; guides users through comprehensive analyses to find safer alternatives
- LCA (Lifecycle Assessment) – evaluation of all impacts throughout a product's lifecycle
- CBA (Cost/benefit analysis) – evaluation of costs and benefits of a project

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Frameworks Comparison
- OECD Meta Review -

- OECD ad hoc group reviewed AA frameworks
- Compiled a comparative study
- Identified opportunities to advance AA practice

OECD Comparison of Frameworks

Framework \ Attributes	Use-Based Exposure/Risk	Cost & Availability	Other Life-cycle Impacts	Social Impacts	Stakeholders	Includes Comparison of Materials and/or Processes
BizNGO Alternatives Assessment Protocol	As needed	Yes	As needed	Not mentioned	Not mentioned	Yes
California Safer Consumer Products Regulation	Yes	Yes	Yes	Yes	Yes	Yes
DfE Chemical Alternatives Assessment Steps	As needed	As needed	As needed	As needed	Yes	Can be added
German Guide on Sustainable Chemicals	Yes	Yes	Yes	Yes	Not mentioned	No
Interstate Chemicals Clearinghouse (IC2) Alternatives Assessment Guidance (draft)	Yes	Yes	As needed	As needed	As needed	As needed
Lowell Center Alternatives Assessment Framework	Not mentioned	Yes	Not mentioned	Yes	Yes	Yes
UNEP Persistent Organic Pollutants Review Committee General Guidance on Alternatives	Yes	Yes	As needed	Yes	As needed	As needed
REACH Authorization Analysis of Alternatives	Yes	Yes	As needed	Yes (but in the Socio-Economic Analysis)	Yes	Yes
TURI Alternatives Assessment Process Guidance	Yes	Yes	Yes	Yes	Yes	Yes
UCLA Multi-Criteria Decision Analysis	Yes	Yes	Yes	Not mentioned	Can be added	Can be added

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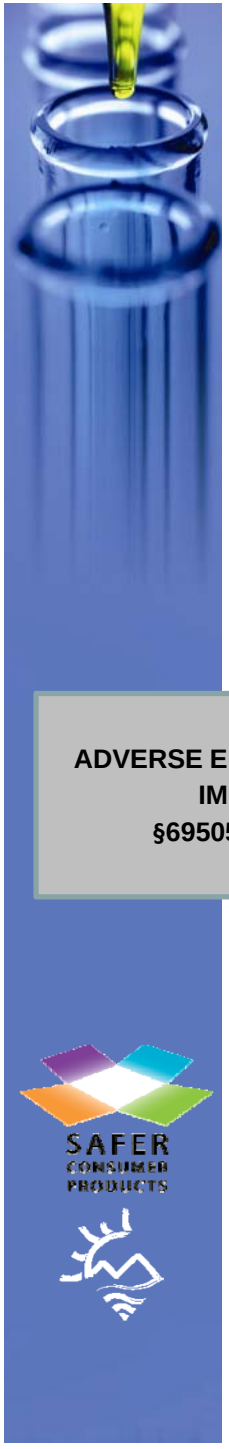
Comparison with California Requirements

Attributes / Framework	Does it include Guidance?	Is it Publically Available?	A Product Function	B Useful Life	C Materials Consumption	D Water Conservation	E Water Quality Impact	F Air Emissions	G Prod. Use Energy Inputs	H Energy Effifiency	I Greenhouse Gas Emmisio	J Waste/EOL Disposal	K Public. Health Impcts	L Environmental Impacts	M Economic Impacts	(G)overnment(A)cademic Industry/NGO(X)
California Safer Consumer Products Regulation	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	G
Interstate Chemicals Clearinghouse (IC2) Alternatives Assessment Guidance (draft)	Y	Y	Y	Y	Y	N	P	Y	Y	N	Y	Y	P	P	P	G
DfE Chemical Alternatives Assessment Steps	Y	Y	Y	N	N	N	Y	Y	N	N	N	Y	P	P	P	G
German Guide on Sustainable Chemicals	Y	Y	N	N	Y	Y	N	P	P	Y	Y	Y	Y	P	P	G
UNEP Persistent Organic Pollutants Review Committee General Guidance on Alternatives	Y	Y	Y	Y	?	N	P	P	N	N	N	P	P	P	Y	G
REACH Authorization Analysis of Alternatives	Y	Y	Y	Y	?	N	P	P	N	N	?	Y	Y	P	Y	G
Lowell Center Alternatives Assessment Framework	Y	Y	Y	Y	N	N	N	N	N	N	N	N	P	P	P	A
TURI Alternatives Assessment Process Guidance	Y	Y	Five case studies – see Lowell Center above.													G
UCLA Multi-Criteria Decision Analysis	N	Y	Framework only – Does not specify A-M tools.													A
BizNGO Alternatives Assessment Protocol	N	Y	Framework only – Does not specify A-M tools.													X
Cradle to Cradle	Y	Y	N	P	P	P	P	P	P	P	N	P	P	N	N	X

Y = Yes/ May Meet California SCP Requirements
N = No/Not Included ? = Not Clear
P = May Partially Meet California SCP Requirements

SCP Factors to Consider for Relevancy

- Adverse environmental impacts
- Adverse public health impacts
- Adverse waste and end-of-life effects
- Environmental fate
- Materials and resource consumption impacts
- Physical chemical hazards
- Physico-chemical properties
- Product function and performance
- Economic Impacts
- Life cycle segments
- Exposure pathways



ADVERSE ENVIRONMENTAL IMPACTS §69505.5(c)(1)(A)

Adverse air quality impacts §69505.1(a)(3)

CA Toxic Air Contaminants
Emissions of Greenhouse Gases
Emissions of nitrogen oxides
Emissions of particulate matter §69405.7
Emissions of stratospheric ozone depletion §69405.8
Emissions of sulfur oxides
Emissions of Tropospheric ozone-forming §69405.1

Adverse ecological impacts §69505.1(a)(7)

- Acute or chronic toxicity;
- Changes in population size, reductions in biodiversity, or changes in ecological communities; and
  The ability of an endangered or threatened species to survive or reproduce;
- Deterioration or loss of environmentally sensitive habitats;
- Impacts that contribute to or cause vegetation contamination or damage; and
  Biological or chemical contamination of soils; or
  Any other adverse effect in:#
- Domesticated Animal Toxicity
- **NOT COMPLETE LIST**

Adverse soil quality impacts §69505.1(a)(7)

Compaction or other structural changes;
Erosion;
Loss of organic matter;
Soil sealing

Adverse water quality impacts §69505.1(a)(9)

Increase in biological oxygen demand;
Increase in chemical oxygen demand;
Increase in temperature;
Increase in total dissolved solids;
CWA 303(c) & (d);
Safe Drinking Water Act Pollutants;
CA HSC 116455 with Notification Levels;
CA safe Drinking Water Act with Public; Health Goals

Exceedance of enforceable California or federal regulatory standard relating to the protection of the environment.

Must see regulation for complete list

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Comparison of CA and REACH

California Requirements	REACH	Gaps
Adverse environmental impacts AB 1879 Criteria: E: Water quality F: Air emissions I: GHG J: Waste and end-of-life L: Environmental	<u>Environmental Endpoints:</u> – Aquatic toxicity – Sediment toxicity – Toxicity to sewage treatment plant micro-organisms – Degradation/biodegradation – Aquatic bioconcentration and bioaccumulation – Terrestrial bioaccumulation – Long-term toxicity to birds – Terrestrial toxicity	– Adverse **soil quality** impacts not mentioned in REACH – SCP has **specific criteria on water quality** impacts. Are these addressed by REACH's aquatic toxicity, aquatic bioconcentration and bioaccumulation, sediment toxicity, or sewage impacts? – Adverse **air quality impacts** not directly addressed
Adverse public health impacts AB 1879 Criteria: K: Public health Cardiovascular, endocrine, neurodevelopmental, digestive system, musculoskeletal, and urinary system toxicity, hematoxicity, hepatoxicity immunotoxicity, nephrotoxicity, neurotoxicity, ototoxicity	<u>Human health endpoints</u> – Irritation and corrosion – Skin and respiratory sensitization – Acute toxicity – Repeated dose toxicity – Reproductive and developmental toxicity – Mutagenicity – Carcinogenicity <u>Identification/Derivation of:</u> – DNEL – PNEC	REACH's acute toxicity and repeated dose toxicity cover broad impacts on organs and tissues. **Reach endpoints may not be broad enough** for SCP.

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Tool Sufficiency
Example: Chemical Hazard Assessment

Greenscreen - 18 endpoints

OEHHA - 39 endpoints → CA reqts

Options:

Could expand Greenscreen, but GS only valued if data exist for each endpoint

Build on other tools: P20ASys? Others?

Challenges

Practical Identification of SCP Relevant Factors

Tools to Evaluate/Address Relevant Factors

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